



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,266	07/29/2003	Yeyan Zhang	U0158P OS/OAPT (1010-93)	8587
23657 7590 01/04/2007 COGNIS CORPORATION PATENT DEPARTMENT 300 BROOKSIDE AVENUE AMBLER, PA 19002			EXAMINER PROUTY, REBECCA E	
			ART UNIT	PAPER NUMBER
			1652	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/629,266	<b>Applicant(s)</b> ZHANG ET AL.	
	<b>Examiner</b> Rebecca E. Prouty	<b>Art Unit</b> 1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17, 20, 21, 23, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) 2, 3, 7-16, 20 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-6, 17, 21, 23, and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1652

Claims 18, 19, 22, 24, and 25 have been canceled. Claims 1-17, 20, 21, 23, 26, and 27 are still at issue and are present for examination.

Claims 2, 3, 7-16, 20, and 26 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 5/1/06. As such Claims 1, 4-6, 17, 21, 23, and 27 are examined herein.

Applicants' arguments filed on 10/16/06, have been fully considered and are deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

Claims 17 and 23 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1 and Claim 21 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 5. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). As amended claims 1 and 17 are identical as are Claims 5 and 21. Claim 23 differs

Art Unit: 1652

from claims 1 and 17 only in the preamble reciting a "method of increasing conversion of a fatty acid to its corresponding dicarboxylic acid" instead of a "method of converting a fatty acid to its corresponding dicarboxylic acid". However as these are essentially the same in meaning and the recited steps of the methods are identical these claims are considered to be duplicative.

Claims 17, 21, 23 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 17 and 23 (upon which claims 21 and 27 depend) recite "isolating a POX4 promoter from a *C. tropicalis* gene which is induced when the *C. tropicalis* is grown on fatty acids or alkanes". This language is confusing as a POX4 promoter is present only in the POX4 gene and not in other *C. tropicalis* genes which are induced when the *C. tropicalis* is grown on fatty acids or alkanes. As such this language is presumed to be limited to "isolating a *C. tropicalis* POX4 promoter". Furthermore, in view of the amendment of part (a) of claims 17 and 23 to limit them to the POX4 promoter, the recitation of "the inducible gene promoter" in part (c) of these claims lacks sufficient antecedent basis.

Art Unit: 1652

Claims 1, 4, 5, 17, 21, 23 and 27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

These claims are directed to methods of converting a fatty acid to its corresponding dicarboxylic acid using a genus of NCP or NCP1B genes involved in dicarboxylic acid production. The specification teaches the structure of only a single representative species of such genes, i.e., the *C. tropicalis* NCP1B gene. Moreover, the specification fails to describe any other representative species by any identifying characteristics or properties other than the functionality of involvement in dicarboxylic acid production. Given this lack of description of representative species encompassed by the genus of the claim, the specification fails to sufficiently describe the claimed invention in such full, clear, concise, and exact terms that a skilled artisan would recognize that applicants were in possession of the claimed invention.

Applicants response to the previous Office action states that the claims have been limited to the *C. tropicalis* NCP1B

Art Unit: 1652

gene, however, only claim 6 is so limited. The remainder of the claims include any NCP gene (Claims 1, 4, 17, 23, and 27) or any *NCP1B* gene (claims 5 and 21) having any structure from any source including all naturally occurring NCP genes or any man-made variants thereof. As such the rejection is maintained.

Claims 1, 4, 5, 17, 21, 23 and 27 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods of converting a fatty acid to its corresponding dicarboxylic acid using a *C. tropicalis* POX4 promoter fused to the *C. tropicalis* *NCP1B* gene, does not reasonably provide enablement for methods of converting a fatty acid to its corresponding dicarboxylic acid using a *C. tropicalis* POX4 promoter fused to any NCP gene or *NCP1B* gene involved in dicarboxylic acid production. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The rejection is explained in the previous Office Action.

Applicants response to the previous Office action states that the claims have been limited to the *C. tropicalis* *NCP1B* gene, however, only claim 6 is so limited. The remainder of the claims include any NCP gene (Claims 1, 4, 17, 23, and 27) or any *NCP1B* gene (claims 5 and 21) having any structure from any

Art Unit: 1652

source including all naturally occurring NCP genes or any man-made variants thereof. As such the rejection is maintained.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4-6, 17, 21, 23, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Wilson et al. (US Patent 6,331,420) or Wilson et al. (WO 00/20566) in view of Okazaki et al.

Wilson et al. (WO 00/20566 and US Patent 6,331,420) teach methods of converting a fatty acid to its corresponding dicarboxylic acid comprising transforming a suitable host cell with a *C. tropicalis* CPRB gene (identical to the *C. tropicalis* NCP1B gene of the instant application) and culturing the cell in

Art Unit: 1652

the presence of an organic substrate that is biooxidizable to a mono- or polycarboxylic acid, such as saturated or unsaturated fatty acids, alkanes, alkenes, alkynes or combinations thereof (see pages 12 and 24 of WO 00/20566 and columns 9 and 17 of US Patent 6,331,420). Wilson teach that the existing promoter of the CPR genes can be replaced with a strong promoter and teach that a suitable example of such a strong promoter is the *Candida* POX4 promoter (see page 22 of WO 00/20566 and column 16 of US Patent 6,331,420) and that suitable host cells include yeast.

Okazaki et al. teach the *Candida tropicalis* POX4 promoter and teach that the POX4 gene is induced by growth on fatty acids or alkanes.

Therefore, it would have been obvious to one of ordinary skill in the art to use the *Candida tropicalis* POX4 promoter of Okazaki et al. in the methods of Wilson et al. (US Patent 6,331,420) or Wilson et al. (WO 00/20566) as each of the Wilson et al. references specifically suggest use of a POX4 promoter for the overexpression of the *C. tropicalis* NCP1B gene.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).




Art Unit: 1652

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca E. Prouty whose telephone number is 571-272-0937. The examiner can normally be reached on Tuesday-Friday from 8 AM to 5 PM. The examiner can also be reached on alternate Mondays

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy, can be reached at (571) 272-0928. The fax phone number for this Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
REBECCA E. PROUTY  
PRIMARY EXAMINER  
GROUP 1600  
1600